

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF NEW YORK

MICHELE BAKER, individually and
on behalf of all other persons similarly
situated,

Plaintiffs,

-against-

1:16-CV-0917 (LEK/DJS)

SAINT-GOBAIN PERFORMANCE
PLASTICS CORP., *et al.*,

Defendants.

MEMORANDUM-DECISION AND ORDER

I. INTRODUCTION

This case stems from the contamination of groundwater in the Hoosick Falls, New York area with perfluorooctanoic acid, or PFOA. See, e.g., Dkt. No. 171 (“Amended Complaint”) ¶ 1. While many suits concerning this contamination have been filed in this District, this case is a consolidated class action with putative classes including all individual owners or renters of real property within the Hoosick Falls area, as well as anyone who consumed water from Hoosick Falls and exhibits a heightened blood-serum level of PFOA. Id. ¶ 135.¹

In the Amended Complaint, Plaintiffs allege that Saint-Gobain Performance Plastics Corp., Honeywell International Inc., E.I. DuPont De Nemours and Company, and 3M Co. (collectively, “Defendants”), were responsible for the PFOA contamination, which came from one or more manufacturing facilities that they operated at various times within the Hoosick Falls

¹ Because class certification is not at issue in this Memorandum-Decision and Order, the Court has summarized these classes for brevity. The full proposed class definitions can be found in Plaintiffs’ motion for class certification. See generally Dkt. No. 145 (“Motion for Class Certification”).

area. See generally Am. Compl. Because of this groundwater contamination, Plaintiffs claim that the drinking water of Hoosick Falls became nonpotable, causing the loss of property value, increased risk of disease, and other damages. Id. ¶¶ 248–303.

Currently before the Court is Defendants’ motion to exclude expert testimony relied upon in Plaintiffs’ motion for class certification. Dkt. Nos. 229 (“Motion to Exclude”); 229-1 (“Defendants’ Memorandum of Law”). Defendants’ motion seeks to exclude the testimony of David Savitz, Alan Ducatman, Jeffrey Zabel, Hyeong Moo Shin, Mark Huncik, and Donald Siegel. Plaintiffs oppose Defendants’ motion. Dkt. No. 247 (“Opposition”). Defendants filed a reply. Dkt. No. 260 (“Reply”). For the reasons that follow, Defendants’ motion is denied in its entirety.

II. BACKGROUND

Plaintiffs’ factual allegations are detailed in the Court’s February 6, 2017 Memorandum-Decision and Order, familiarity with which is assumed. See Dkt. No. 33 (“February 2017 Memorandum-Decision and Order”) at 2–11.

III. LEGAL STANDARD

Under Rule 702 of the Federal Rules of Evidence, the Court is charged with a “gatekeeping” obligation with respect to expert testimony. Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 597 (1993). The trial judge must ensure “that an expert’s testimony both rests on a reliable foundation and is relevant to the task at hand.” Id. Rule 702 provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable

principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. “To determine whether a witness qualifies as an expert, courts compare the area in which the witness has superior knowledge, education, experience, or skill, with the subject matter of the proffered testimony.” United States v. Tin Yat Chin, 371 F.3d 31, 40 (2d Cir. 2004). “Generally speaking, expert qualifications are liberally construed.” Rondout Valley Cent. Sch. Dist. v. Coneco Corp., 321 F. Supp. 2d 469, 474 (N.D.N.Y. 2004) (citations omitted).

“Under *Daubert*, factors relevant to determining reliability include the theory’s testability, the extent to which it has been subjected to peer review and publication, the extent to which a technique is subject to standards controlling the technique’s operation, the known or potential rate of error, and the degree of acceptance with the relevant scientific community.” Restivo v. Hessemann, 846 F.3d 547, 575–576 (2d Cir. 2017) (internal quotation marks and citations omitted). The reliability inquiry is a “flexible one,” Daubert, 509 U.S. at 594, and the factors to be considered “depend[] upon the particular circumstances of the particular case at issue,” Kumho Tire Co., Ltd. v. Carmichael, 526 U.S. 137, 150 (1999). “In undertaking this flexible inquiry, the district court must focus on the principles and methodology employed by the expert, without regard to the conclusions the expert has reached or the district court’s belief as to the correctness of those conclusions.” Amorgianos v. Natl. R.R. Passenger Corp., 303 F.3d 256, 266 (2d Cir. 2002). “Thus, when an expert opinion is based on data, a methodology, or studies that are simply inadequate to support the conclusions reached, *Daubert* and Rule 702 mandate the exclusion of that unreliable opinion testimony. *Id.* In other words, “[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.” Gen. Elec. Co. v. Joiner, 522 U.S. 136, 146 (1997). “Frequently, though, ‘gaps or inconsistencies in the reasoning leading to [the expert’s] opinion . . . go to the weight of the evidence, not to its

admissibility.” Restivo, 846 F.3d at 577 (quoting Campbell ex rel. Campbell v. Metro. Prop. & Cas. Ins. Co., 239 F.3d 179, 186 (2d Cir. 2001)).

Ultimately, a district court has the same broad latitude when it decides how to determine reliability as it enjoys in respect to its ultimate reliability determination. See Gen. Elec. Co., 522 U.S. at 142. Moreover, “[v]igorous cross-examination, presentation of contrary evidence and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” Daubert, 509 U.S. at 596.

IV. DISCUSSION

When expert testimony is submitted at the class certification stage, neither the United States Supreme Court, nor the Second Circuit, has “definitively ruled on the extent to which a district court must undertake a *Daubert* analysis” of the proffered testimony. In re U.S. Foodservice Inc. Pricing Litig., 729 F.3d 108, 129 (2d Cir. 2013). “Most courts that have addressed the issue have concluded that the *Daubert* test does apply in this context.” Chen-Oster v. Goldman, Sachs & Co., 114 F. Supp. 3d 110, 114 (S.D.N.Y. 2015). “Several rationales support this view” including that: (1) “*Daubert* is an amplification of Rule 702, and the Federal Rules of Evidence apply generally to ‘proceedings’ in the courts of the United States;” (2) “the Supreme Court has directed district courts to conduct a ‘rigorous analysis’ in class certification proceedings to determine whether the [class certification] requirements of Rule 23 of the Federal Rules of Civil Procedure are met;” and (3) “the Supreme Court itself has expressed skepticism at the suggestion that *Daubert* would not apply to expert testimony at the class certification stage.” Id. (citations omitted). For these reasons, the Court finds that it is appropriate to undertake a *Daubert* analysis. “However, the scope of the *Daubert* analysis is cabined by its purpose at this stage: the inquiry is limited to whether or not the expert reports are admissible to establish the

requirements of Rule 23.” Id. (internal quotation marks and citations omitted). In deciding whether an expert’s opinion is admissible for this purpose, the Court will ensure, among other things, that it “fits” the facts of the case and is “relevant to the task at hand.” Daubert, 509 U.S. at 591–92, 97.

The Court examines in turn each of Defendants’ challenges to Plaintiffs’ experts.

A. David Savitz, Ph.D.

Plaintiffs proffer Dr. Savitz, as an expert on the causal link between PFOA exposure and disease. The Court finds Dr. Savitz’s testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Dr. Savitz is a professor of epidemiology at Brown University. Dkt. No. 165 (“Savitz Rpt.”) at 4.² Dr. Savitz was one of the three epidemiologists chosen by DuPont to serve on the C8 Science Panel, a group of experts convened to evaluate the probable causal link between exposure to PFOA and the development of certain diseases.³ Id. at 4–5. Since his service on the panel, Dr. Savitz has served as a peer reviewer for the Agency for Toxic Substances and Disease Registry (“ATSDR”) June 2018 Draft Toxicological Profile for Perfluoroalkyls (which include PFOA) and chaired the State of Michigan Science Advisory Panel on environmental health and safety risks related to perfluoroalkyls. Id. Dr. Savitz has also served as the principal investigator on approximately forty public health studies and authored over 350 peer-reviewed articles,

² Citations to filings refer to the page numbers generated by CM/ECF, the Court’s electronic filing system.

³ PFOA is also known colloquially as C8 due to the compound’s backbone being comprised of eight carbon atoms.

several of which analyze the health impacts caused by exposure to perfluoroalkyls. Given his experience, Dr. Savitz is highly qualified to provide an opinion on general causation and PFOA medical monitoring.

2. *Reliability and Methodology*

In this case, Dr. Savitz updated his previous research, performed a detailed review of the scientific literature, and applied his education and experience as an epidemiologist to reach conclusions regarding the causal effects of PFOA. See generally id. Based on his research, Dr. Savitz concluded that “it is more probable than not that exposure to PFOA is capable of causing” thyroid disease, ulcerative colitis, kidney cancer, testicular cancer, increased uric acid levels, high cholesterol, and increased liver enzyme levels. Id. at 11–19. This opinion is consistent with Dr. Savitz’s prior opinions expressed outside of litigation, including those reached as a member of the C8 Science Panel, which renders it more reliable. See In re Ephedra Prods. Liab. Litig., 393 F. Supp. 2d 181, 195 (S.D.N.Y. 2005) (expert opinions are more reliable when consistent with prior opinions). At least one other court in this Circuit has found epidemiological evidence linking PFOA exposure to disease admissible. See, e.g., Sullivan v. Saint-Gobain Performance Plastics, No. 16-CV-125, Dkt. No. 146-5 (D. Vt. July 15, 2019) (“Sullivan”) at 26–41.

Defendants argue that Dr. Savitz’s opinions on general causation have not gained acceptance in the scientific community and therefore his opinions are not reliable. Defs.’ Mem. of Law at 40. However, Dr. Savitz opinions are in accord with worldwide and national scientific authorities. As Plaintiffs point out, the Environmental Protection Agency Science Advisory Board previously characterized PFOA as “likely to be carcinogenic to humans.” Opp’n at 18 (citing *SAB Review of EPA’s Draft Risk Assessment of Potential Human Health Effects Associated with PFOA and Its Salts*, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

(2006),

[https://yosemite.epa.gov/sab/sabproduct.nsf/A3C83648E77252828525717F004B9099/\\$File/sab_06_006.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/A3C83648E77252828525717F004B9099/$File/sab_06_006.pdf)). Furthermore, the International Agency for Research on Cancer concluded that PFOA is “possibly carcinogenic to humans.” Opp’n at 18 (citing Dkt. No. 228-33 at 10). The European Food Safety Authority also concluded that PFOA may cause disease in humans. See Dkt. No. 246-27 (“Savitz Rebuttal”) at 4 (citing *PFAS in food: EFSA assesses risks and sets tolerable intake*, EUROPEAN FOOD SAFETY AUTHORITY (2020),

<https://www.efsa.europa.eu/en/news/pfas-food-efsa-assesses-risks-and-sets-tolerable-intake>).

Lastly, the New Jersey Water Quality Institute, a division of the New Jersey Department of Environmental Protection, summarized the “consensus view of epidemiologists and public health experts”:

[A]ssociations of PFOA with numerous health endpoints have been found in human populations with evidence supporting criteria for causality for some endpoints. These health endpoints include both non-carcinogenic effects in the general population and both non-carcinogenic effects and cancer in communities with drinking water exposure. The epidemiologic data for PFOA are notable because of the consistency between results among human epidemiologic studies in different populations, the concordance with toxicological findings from experimental animals, the use of serum concentrations as a measure of internal exposure, the potential clinical importance of endpoints for which associations are observed, and the observation of associations within the exposure range of the general population.

Savitz Rpt. 25–28 (citing *Health-Based Maximum Contaminate Level Support Document: Perfluorooctanoic acid (PFOA)*, NEW JERSEY DRINKING WATER QUALITY HEALTH EFFECTS SUBCOMMITTEE, at 213 (2017), <https://www.state.nj.us/dep/watersupply/pdf/pfoa-appendixa.pdf>).

Dr. Savitz reviewed the scientific literature and provided a bibliography listing 134 papers that he reviewed and considered. Savitz Rpt. at 11. Dr. Savitz analyzed and considered both studies that found associations between PFOA exposure and health outcomes and those that did not find any such associations. Dkt. No. 246-26 at 17.

Based on Dr. Savitz methodology and his opinions, the traditional Daubert factors support the admissibility of his testimony. Dr. Savitz considered numerous peer-reviewed papers discussing the health effects of PFOA, and his opinions are consistent with his past findings and the findings of other scientific authorities. Furthermore, in conjunction with Dr. Ducatman's testimony discussed below, Dr. Savitz's testimony "fits" the issues presented by Plaintiffs concerning PFOA pollution and its detrimental effects on health. For these reasons, the Court finds Dr. Savitz's methodology and opinions reliable and denies Defendants' Motion to Exclude his testimony.

B. Alan Ducatman, M.D.

Plaintiffs proffer Dr. Ducatman as an expert on medical monitoring. The Court finds Dr. Ducatman's testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Dr. Ducatman is board certified in internal and occupational medicine and has been licensed to practice medicine since 1982. Dkt. No. 162 ("Ducatman Rpt.") at 5. He is a professor emeritus of public health at West Virginia University School of Medicine and prior to that was the Director of Environmental Medical Services at the Massachusetts Institute of Technology. Id.

Dr. Ducatman has published numerous papers, reviews, and book chapters about the relationship of environmental chemicals such as PFOA to human disease. Id. Dr. Ducatman has also served as an expert witness in prior PFOA pollution class action cases and designed medical monitoring programs to detect PFOA-related disease for class members with heightened PFOA blood accumulation levels. Id. Given his experience, Dr. Ducatman is highly qualified to provide an opinion on general causation and PFOA medical monitoring.

2. Reliability and Methodology

Dr. Ducatman provided an expert report in this case regarding the appropriateness of medical monitoring. He offers the following opinions:

- As a result of the contamination of drinking water by PFOA, Hoosick Falls residents have PFOA levels that exceed average levels found in the general population.
- The presence of PFOA in the bloodstream increases the risk of development of certain illnesses.
- These illnesses include kidney and testicular cancer, hypertension, thyroid disease, liver disease, hyperlipidemia, gout, and ulcerative colitis.
- Increased testing and examination known as medical monitoring will increase the likelihood of early detection and improved outcomes for these conditions.

These opinions are set forth in much greater detail in Dr. Ducatman's report. See generally id.

Defendants criticize Dr. Ducatman's report on several grounds. Most notably, they first argue that in recommending a class-wide monitoring program for individuals with an above-average PFOA blood concentration, Dr. Ducatman overlooks the individual differences between class members. Defs.' Mem. of Law at 34–36. These differences include different levels of PFOA exposure, susceptibilities to PFOA, physiology, water consumption, diet, drug and alcohol use, body mass index, and other factors. Id. Second, Defendants repeatedly argue that medical

monitoring for individuals with a PFOA blood serum level exceeding 1.86 µg/L is arbitrary and not supported by any reliable scientific methodology. See id. at 26–27.

With regard to Defendants’ first argument, individualized inquiry to establish entitlement to medical monitoring is not required under these circumstances. In Rowe v. E.I. duPont de Nemours & Co., the court took issue with the fact that the risk assessment for a purported class made a number of assumptions about exposure size and water consumption to arrive at an average risk when exposure varied on an individual basis. No. 06-CV-1810, 2008 WL 5412912, at *12 (D.N.J. Dec. 23, 2008). The court noted that plaintiffs could have resolved this issue by conducting blood serum tests. Id. at 14. This is precisely what Plaintiffs have done here, requiring proof of individual PFOA exposure for membership in the class. Opp’n at 27. Similarly, in Rhodes v. E.I. duPont de Nemours & Co., the court held that plaintiffs could prove that DuPont was a proximate cause of plaintiffs’ injuries if plaintiffs demonstrated that “each and every class ha[d] been exposed to C-8 [PFOA] above so-called ‘background levels’ of exposure, that is, exposure levels experienced by the general population.” 253 F.R.D. 365, 374–75 (S.D. W.Va. 2008) (rejecting plaintiffs’ proposed risk assessment methodology because it failed to demonstrate individual exposures, which would in turn show “actual risk” to each class member). Plaintiffs have met such a standard here because they can all demonstrate exposure above background levels and, as such, “actual risk.” For these reasons, Dr. Ducatman’s testimony was accepted in a similar class action. See Sullivan at 27–36 (finding Dr. Ducatman’s testimony admissible despite defendant Saint-Gobain’s objection that he failed to incorporate the individual medical backgrounds of the plaintiffs.).

With regard to Defendants’ second argument, a blood serum level exceeding 1.86 µg/L is consistent with ATSDR regulations concerning medical monitoring, and this precise number has

been accepted by at least one court in the past. See, e.g., Burdick v. Tonoga, Inc., 110 N.Y.S. 3d 219, at *14 (N.Y. Sup. Ct. 2018), aff'd 2019 N.Y. App. Div. LEXIS 8498 (N.Y. App. Div. 2019).

The ATSDR regulations state that “[t]he primary criteria for medical monitoring should be documented evidence of exposure of a population to a hazardous substance in the environment.” Ducatman Rpt., Ex. E. These regulations define a sufficient exposure as one where there “is documentation of an increased opportunity for exposure to a level that meets or exceeds some health-based comparison level.” Id. The regulations state that “[t]he target population of concern is the population in which there is documented exposure at a sufficient level to place the individuals in that population at significant increased risk for developing some specific adverse health effect.” Id. Finally, according to the regulations, “documentation is considered sufficient if it is from an exposure assessment, environmental exposure, or sampling from a general area (for example, water samples from an aquifer or a town water supply).” Id. “Documentation of individual exposure is not required.” Id.

Dr. Ducatman applies these criteria and concludes that there is sufficient documentation of exposure of the class to PFOA-contaminated drinking water that far exceeds health-based comparison levels. Id. at 11–13, 17. Based on his conclusion, Dr. Ducatman opines that medical monitoring is warranted for the class due to its significantly increased risk for developing adverse, PFOA-related health effects. Id. at 17–18 (“Based upon the above analysis, it is my opinion that the target community in Hoosick Falls has been exposed to PFOA above health based comparison values set by state and federal agencies and meets the criteria described by ATSDR for consideration of a medical monitoring program.”)

The Sullivan court found Dr. Ducatman's methodology sound when he defined a medical monitoring class as individuals with PFOA exposures above background levels:

Dr. Ducatman has relied on the ATSDR regulations concerning medical monitoring as a source for standards. The parties disagree about whether the ATSDR factors would support medical monitoring. The question clearly has two sides. In the context of the *Daubert* motion, however, Dr. Ducatman has identified an independent authoritative source to guide his analysis.

Sullivan at 34.

Because Dr. Ducatman relies on the widely accepted ATSDR regulations in recommending a medical monitoring program for Hoosick Falls, and because medical monitoring for PFOA has been recognized as appropriate by other courts, see, e.g., Sullivan at 35, the traditional Daubert factors support the admissibility of Dr. Ducatman's testimony. Despite Defendants' criticisms, the medical monitoring class is defined consistent with ATSDR regulations, and individualized inquiry to establish entitlement to medical monitoring is not required. For these reasons, the Court finds Dr. Ducatman's methodology and opinions reliable and denies Defendants' Motion to Exclude his testimony.

C. Jeffrey Zabel, Ph.D.

Plaintiffs proffer Dr. Zabel as an expert in real estate economics who can help demonstrate that class members' properties experienced diminution in value due to the market-wide stigma attributable to PFOA contamination in Hoosick Falls. Opp'n at 62. The Court finds Dr. Zabel's testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Dr. Zabel is a professor of economics at Tufts University and co-director of its Master's Program in Data Analytics. Dkt. No. 168 ("Zabel Rpt.") at 3. Dr. Zabel has published over 35 articles in peer-reviewed economics journals, as well as several book chapters, a number of which analyze the impacts of environmental pollution on real estate markets. Id. Given his experience, Dr. Zabel has the qualifications necessary to render opinions on real estate economics in this case.

2. *Reliability and Methodology*

To isolate and measure the average percent diminution in value attributable to the market's perception of PFOA contamination in Hoosick Falls, Dr. Zabel designed and applied a hedonic regression model. Id. at 5. A hedonic regression model is a statistical tool used to measure the price impact associated with a particular attribute by isolating that attribute from other variables that may affect value. See, e.g., In re Scotts EZ Seed Litig., 304 F.R.D. 397, 413 (S.D.N.Y. 2015). Courts in this Circuit have approved of the use of hedonic regression models to demonstrate price impact on a class-wide basis. See, e.g., Hasemann v. Gerber Prods. Co., 331 F.R.D. 239, 278 (E.D.N.Y. 2019). A regression model is admissible if it "capture[s] the salient characteristics for pricing purposes," In re Elec. Book Antitrust Litig., No. 11-MD-2293, 2014 WL 1282293, at *31 (S.D.N.Y. Mar. 28, 2014), and "isolate[s] the premium" due to the defendant's misconduct, In re Scotts EZ Seed Litig., 304 F.R.D. at 413. At class certification, an expert need not actually run the regression model, but he or she must identify the inputs and the data required to conduct the analysis. In re Scotts EZ Seed Litig., 304 F.R.D. at 413–14; see also Hasemann, 331 F.R.D. at 278 ("*Comcast* need not be read at this stage to require a court to engage in detailed analysis and speculation of what the outcome of the proposed models will be.") (citing Comcast Corp. v. Behrend, 569 U.S. 27, 34 (2013)).

Here, Dr. Zabel collected data on all single-family home sales in Rensselaer and Washington counties (the counties containing and surrounding Hoosick Falls) from 1998 through September 2019. Zabel Rpt. at 5. He removed “outlier” properties from this data set—those for which certain data was missing, homes outside the first and ninety-ninth percentile in square footage, parcels in excess of ten acres, and foreclosure sales. Id. at 5–6. Dr. Zabel then designed a hedonic model, “which explains variations in sales price as a function of property characteristics, location (jurisdiction) attributes, and changes over time.” Id. The model specifically includes several property characteristics that typically influence value, such as the age of the home, lot size, the number of bedrooms and bathrooms, and square footage. Id.

Dr. Zabel defined Hoosick Falls as the relevant market after reviewing state and federal communications, advisories, and media reports that described PFOA contamination throughout the area. Id. He then identified five “control towns”—nearby communities with real estate markets comparable to Hoosick Falls—and compared sales prices in the Hoosick Falls area to those in the controls. Id.

The results of Dr. Zabel’s studies first show that prior to 2016, before information regarding PFOA contamination in Hoosick Falls was widely available to the market, property values in Hoosick Falls and the control towns were comparable. Id. at 9–10. Beginning in 2016, property values in Hoosick Falls deviated sharply from the control towns, a trend that continued through the end of September 2019. Id. “The results indicate that properties in Hoosick have been depressed by at least 8.75 percent, and as much as 20 percent or more” as a result of the market’s perception of PFOA contamination. Id. at 3. The exact diminution in value depends on how such diminution is defined: whether one considers the price impact only in 2016 (24 percent); whether one considers the price impact since the discovery of PFOA between 2016-

2019 (21 percent); or whether one determines price impact by considering a period both before and after discovery of PFOA between 2012-2019 (8.75 percent). Id. at 11–12. Under all of these definitions, the PFOA contamination in Hoosick Falls diminished property values. Id.

Dr. Zabel designed a similar hedonic regression model in Burdick to measure diminution in value in a small community affected by PFOA emissions. Burdick v. Tonoga, Inc., 110 N.Y.S. 3d, Dkt. No. 146-6 (N.Y. Sup. Ct. 2019) (“Burdick”) at 40. The Burdick court described Dr. Zabel’s methods as “foundationally sound” and denied a motion to exclude. Id. at 40–41.

Defendants argue that Dr. Zabel’s methodology is not reliable because he did not include neighborhood characteristics as one of the model’s variable inputs, an attribute he has included in some hedonic regression models used in academic studies. Defs.’ Mem. of Law at 55–56. As Dr. Zabel discussed, “every model is different, every case is different; they require different characteristics and different specifications.” Dkt. No. 246-22 at 18. In this case, because Dr. Zabel was attempting to measure the diminution in value attributable to PFOA contamination, an omitted variable like neighborhood characteristics would not bias the model unless the omitted variable correlated with PFOA contamination and house prices. Dkt. No. 246-33 at 2. Defendants offer no evidence that neighborhood characteristics in the small community of Hoosick Falls correlate with either of these.

Based on Dr. Zabel’s methodology and his opinions, the traditional Daubert factors support the admissibility of his testimony. Dr. Zabel’s methodology has been widely used and accepted by courts and his opinions were consistent with the findings of others. See Burdick at 40; Orell C. Anderson, *Valuation of Properties Potentially Impacted by PFAS*, AMERICAN BAR ASSOCIATION (2019), <https://www.americanbar.org/groups/litigation/committees/environmental-energy/practice/2019/valuation-of-properties-potentially-impacted-by-pfas/>; Dennis Guignet, *et*

al., Impacts of Ground Water Contamination on Property Values: Agricultural Run-off and Private Wells, CAMBRIDGE UNIVERSITY PRESS (2016), <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/1F19A8C953B22819F365066F512CC6F4/S2372261416000163a.pdf/div-class-title-impacts-of-ground-water-contamination-on-property-values-agricultural-run-off-and-private-wells-div.pdf>. Furthermore, because Dr. Zabel analyzes the diminution in value attributable to the market's perception of PFOA, his analysis "fits" the issues presented in this case by helping to show that Plaintiffs' property damage "stemmed from [Defendants'] actions that created the legal liability." Sykes v. Mel S. Harris & Assocs. LLC, 780 F.3d 70, 82 (2d Cir. 2015); Opp'n at 69. For these reasons, the Court denies Defendants' Motion to Exclude Dr. Zabel's testimony.

D. Hyeong Moo Shin, Ph.D.

Plaintiffs proffer Dr. Shin as a chemical fate and transport expert. The Court finds Dr. Shin's testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Dr. Shin is an assistant professor of earth and environmental sciences at the University of Texas at Arlington. Dkt. No. 256-29 ("Shin Rpt.") at 2. He is the lead author on four papers and co-author of ten other papers in peer-reviewed scientific literature related to the fate and transport of PFOA in the environment and exposure estimates of affected populations. Id. He was one of the lead researchers in the C8 Health Project that was responsible for a significant

portion of the scientific literature on these topics and has published more papers in the peer-reviewed scientific literature on PFOA fate and transport than any other scientist in the world. Id. Given his experience, Dr. Shin has the qualifications necessary to render opinions on the chemical fate and transport of PFOA in this case.

2. Reliability and Methodology

Dr. Shin's analysis in this case began with an assessment of the PFOA emissions from Defendants' McCaffrey facility, located in Hoosick Falls. From the late 1960s through May of 2003, this facility performed aqueous fluoropolymer dispersion ("AFD") coating, which is a known source of PFOA air emissions. Id. at 8. PFOA was found at exceedingly high levels in the soil and groundwater surrounding the McCaffrey site. See generally Dkt. No. 246-9. In order to determine the breadth of spread of the PFOA air emissions from McCaffrey, Dr. Shin performed an assessment of the volume of PFOA air emissions from this known source of PFOA particulate matter using all of the available data.

Saint-Gobain produced an opacity study report that provided a detailed analysis of how AFD was utilized in the eight AFD coating towers that were used at the McCaffrey site. Dkt. No. 256-24 ("Opacity Study Report"). The Opacity Study Report, and the air permit application from 1995, Dkt. No. 252-5 ("Air Permit Application"), documented that five of the eight coating towers (the "I.R. Towers") used radiant heat while the other three used hot air (the "Hot Air Towers"). Shin Rpt. at 3 (citing to Opacity Study Report). The Opacity Study Report and Air Permit Application also disclosed that while the Hot Air Towers were equipped with scrubbers to reduce particulate emissions, the five I.R. Towers were not equipped with air pollution abatement technology capable of suppressing particulate air emissions. Id. at 11 (citing to Opacity Study Report and Air Permit Application). From Dr. Shin's prior published work in this

field, he had demonstrated that PFOA air emissions released during the process of heating AFD consisted of vapors that condense to form fine particulate matter that is carried by the wind until washed out by precipitation (wet deposition) or settled to the ground by gravity (dry deposition). Id. at 5.

Dr. Shin then utilized purchase records and deposition testimony to estimate AFD usage at the McCaffrey site from 1980 to 2003. Id. at 10 (citing to Dkt. Nos. 148-32; 246-7 at 73, 84–85). Because there was no AFD purchase volume data prior to 1991 produced through discovery, Dr. Shin conservatively used the lowest volume of AFD purchased in any full year between 1991 and 2003 to approximate the amount for the missing years between 1980 and 1990. Id. at 10. The lowest volume purchased between these years was in 2002. Id. Dr. Shin said this was a deliberate underestimate to utilize conservative inputs. Id.

With detailed data on the relative use of AFD in the eight towers derived from the opacity study, Dr. Shin was able to apportion the relative AFD usage for each year to each of the eight towers. Id. To determine the amount of PFOA released from the AFD apportioned to each tower, Dr. Shin utilized data provided in the “Dispersion Processor Mass Balance Project Final Report,” prepared by Barr Engineering at the request of the Society of the Plastics Industry Fluoropolymers Manufacturers Group. Dkt. No. 148-14 (“Barr MB Study”). The Barr MB Study determined the average emissions of PFOA from AFD coating operations using the Hot Air and I.R. Towers. See generally id. Dr. Shin then applied these PFOA emission percentages to the estimated AFD usage to calculate the total amount of PFOA air emissions for each of the eight towers. Shin Rpt. at 12.

Using this methodology, Dr. Shin calculated that almost three tons of PFOA was released into the air from the McCaffrey facility’s towers between 1980 and 2003. Id. Dr. Shin provided

his calculations to Mark Huncik, Plaintiffs' air modeling expert. His methodology is discussed more below. Mr. Huncik gave his air modeling outputs to Dr. Shin. Id. at 12–13. From these outputs, Dr. Shin concluded that dispersion and deposition of PFOA from the McCaffrey site covered the entire town of Hoosick Falls and beyond, especially to the north, where the contamination was dispersed well into Washington County. Id. at 14; Opp'n at 33. The areas of heaviest deposition were also in areas where most of the wells with the highest PFOA levels were located. Shin Rpt. at 15. From his analysis of air modeling outputs for the McCaffrey site and another site named Chemfab in North Bennington, Vermont, Dr. Shin concluded that, in a portion of the eastern part of Hoosick Falls, he could not state with scientific certainty that McCaffrey emissions were the primary source of PFOA contamination. Id. at 14. For this reason, the proposed class boundaries exclude this eastern portion of Hoosick Falls. Opp'n at 33.

Mr. Huncik's air modeling outputs were also analyzed by Dr. Shin in the context of the published literature regarding widespread PFOA drinking water contamination. Multiple peer-reviewed articles have demonstrated that the primary source of PFOA contamination in drinking water in the United States is manufacturing facilities. See, e.g., Dkt. No. 228-42 ("Shin Rebuttal") at 4 (citing multiple peer-reviewed articles). These studies show that more than 95 percent of the environmental releases of PFOA derive from direct sources such as AFD manufacturers. Id. Because McCaffrey is the only major source of PFOA in the designated "Contamination Zone," the air modeling outputs were consistent with what would be expected based on the published literature. Id. at 4–5.

Defendants attack Dr. Shin because he previously opined in the Burdick case that PFOA from the Taconic facility in Petersburg traveled up to seven miles and polluted a portion of the purported class area in this case. See Defs.' Mem. of Law at 47. Defendants argue that Dr. Shin's

previous opinion is inconsistent with his current opinion that the McCaffrey site polluted the purported class area. Id. However, these two opinions are not inconsistent. In his rebuttal report, Dr. Shin asserts that a small overlap area between the purported class area in this case and the class area in the Burdick case likely had pollution originating from both McCaffrey and Taconic. Shin Rebuttal at 5–6. Dr. Shin never claimed that the McCaffrey site was the sole cause of pollution for the purported class area. Similarly, Defendants’ do not claim that the Taconic PFOA emissions are the sole cause of pollution for any part of the purported class area.

Defendants also argue that Dr. Shin’s opinion should be excluded because he failed to consider all alternative sources of pollution. See Defs.’ Mem. of Law at 35. However, Dr. Shin only concludes that the McCaffrey site is a significant factor in contributing PFOA to the contaminated wells of the purported class area. Shin Rpt. at 3. As summarized in Taber v. Allied Waste Systems, Inc., an “expert need only exclude those alternative explanations that are ‘obvious’—i.e. where there is an established connection between certain possible causes and [the injury].” 642 Fed App’x 801, 811 (10th Cir. 2016). “If there is no evidence showing a possible alternative is valid, the expert’s failure to rule it out does not render his [opinion] unreliable.” Id. As previously stated, Dr. Shin did consider PFOA pollution in the purported class area from other sources. Furthermore, Defendants do not point to any evidence showing that a possible alternative source may be a significant factor in contributing PFOA to the contaminated wells of the purported class area.

Dr. Shin’s opinions meet the Daubert standard. It is consistent with peer-reviewed literature and analyzes obvious alternate sources of PFOA pollution. In addition, Dr. Shin explains where he obtained all of the data and the specific steps he took to analyze the data to reach his conclusions. The principles that explain the mass transport of PFOA in the air are

commonly accepted within the scientific community. See, e.g., Mary A. Kaiser, *et al.*, *Understanding Potential Exposure Sources of Perfluorinated Carboxylic Acids in the Workplace*, ANN. OCCUP. HYG., Oct. 2010. Furthermore, tracing the transport of PFOA in the air from the McCaffrey site “fits” the Rule 23 issues presented in this case regarding contamination from airborne sources. For these reasons, the Court denies Defendants’ Motion to Exclude Dr. Shin’s testimony.

E. Mark Huncik

Plaintiffs proffer Mr. Huncik as an air modeling expert. The Court finds Mr. Huncik’s testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Mr. Huncik is an independent environmental consultant with thirty years of experience specializing in air quality compliance and permitting, with additional emphasis on pollutant dispersion and modeling. Dkt. No. 252-26 (“Huncik Rpt.”), Ex. A. Mr. Huncik has acted as a subject expert and factual witness for air pollution-related hearings and litigation supporting both public and private business interests. Id.

2. Reliability and Methodology

Mr. Huncik obtained detailed data about the tower heights, exhaust velocity, temperatures, and building configuration at the McCaffrey site from the Air Permit Application, and by reviewing photographs of the building. Id. at 5–6. Meteorological data showing average

temperatures, wind speed, wind direction and precipitation amounts were obtained from the two closest airports to the McCaffrey site, in Albany, New York and in Bennington, Vermont. Id.

Because Hoosick Falls sits in a deep valley with significant steep walls to the east and west, Dr. Shin recommended that Mr. Huncik utilize the Albany airport data because the prevailing wind directions in Albany would be a more accurate match due to the topographical features of the valley. Shin Rpt. at 13–14. Using the AERMOD program, Mr. Huncik created two separate models for the air in Hoosick Falls, one using the Albany meteorological data, and one using the Bennington meteorological data. Huncik Rpt. at 3–9.

For his air model, Mr. Huncik was able to set a threshold level below which his models would not display any particulate deposition. See, e.g., Huncik, Fig. 5. Mr. Huncik set this threshold at $1.0 \times 10^{-6} \frac{g}{m^2}$ of PFOA for his two models. Id. Thus, although the model calculated deposition data for the entire class area, it only displays PFOA concentrations in excess of this threshold value in Hoosick Falls. Opp’n at 31.

In addition to modeling the McCaffrey site’s air emissions, Mr. Huncik also modeled the air emissions from the Chemfab site so Mr. Shin could analyze whether the Chemfab site’s emissions contributed to the PFOA pollution in Hoosick Falls. See Huncik Rpt. Fig. 7.

Mr. Huncik’s opinions meet the Daubert standards. AERMOD has been used to model air patterns by government regulators and research scientists. Sullivan at 20. AERMOD models are published widely and available to all scientists in an open-format manner. Id. Furthermore, Mr. Huncik’s use of airport data to analyze wind directions in Hoosick Falls “fits” the issues presented in this case by allowing the other experts to analyze the chemical fate and transport of PFOA from the McCaffrey site and surrounding chemical sites. For these reasons, the Court denies Defendants’ Motion to Exclude Mr. Huncik’s testimony.

F. Donald Siegel, Ph.D.

Plaintiffs proffer Dr. Siegel as a hydrogeology expert. The Court finds Dr. Siegel's testimony admissible. His specialized knowledge will help the trier of fact understand the evidence, his testimony is based on sufficient facts and data, his testimony is the product of reliable principles and methods, and he has reliably applied the principles and methods to the facts of the case.

1. Qualifications

Dr. Siegel is a professor of earth sciences at Syracuse University. Dkt. No. 256-30 ("Siegel Rpt.") at 1. He has also served as Chairman of the Hydrogeological Division of the Geological Society of America. Id. He has published over 160 peer-reviewed research papers and books on topics spanning the breadth of hydrogeologic sciences, from containment geochemistry to wetland hydrology. Id. Given his experience, Dr. Siegel is qualified to render opinions on hydrogeology.

2. Reliability and Methodology

Dr. Siegel reviewed all of the historical documents related to McCaffrey operations, including environmental reports from 1996 documenting that other containments of liquid waste had been released to the ground under the facility through an unlined cement sump in the basement of a the building with a broken overflow pipe. Id. at 5. Dr. Siegel also reviewed the extensive PFOA soil, groundwater, and surface water testing data on the site and throughout the proposed class area, and analyzed the hydrogeological conditions present in the three aquifers beneath the surface within the proposed class area. Id. at 18–22. Lastly, Dr. Siegel reviewed the air modeling outputs created by Dr. Huncik, the analysis of Dr. Shin, and the Barr MB Study. Id. at 33.

Dr. Siegel plotted the PFOA groundwater levels near the McCaffrey site and documented that the areas with the highest levels of PFOA groundwater concentrations were located beneath the facility. Id. at 23–24. These polluted areas were also suspected of being the sources of PFOA wastewater discharges, including from the unlined cement sump. Id. Using the same purchase records as Dr. Shin, Dr. Siegel calculated that approximately sixteen pounds of PFOA were discharged to the ground at the McCaffrey site in each year of its operation. Id. at 33.

Dr. Siegel then analyzed the well head levels measured by Defendants’ contractor to plot the direction of groundwater flow in the aquifer that provided the source of drinking water in Hoosick Falls. Id. at 29–30. This plot shows that the contaminated groundwater under the McCaffrey site flows directly towards the wells in Hoosick Falls and is a significant source of PFOA in those wells. Id.

From his analysis, Dr. Siegel concluded that the air and wastewater emissions from the McCaffrey site contaminated the wells in Hoosick Falls. Id. at 32. Dr. Siegel also concluded that the effect of pumping these wells drew water from beneath the McCaffrey site to the aquifer that supplied the wells. Id. at 46.

Dr. Siegel further analyzed the time required for PFOA to move from the surface, where it was deposited as particulate matter, through the soil and into the groundwater. Id. To perform this analysis, Dr. Siegel utilized the “Rao approach” which incorporates two algebraic equations to measure the sorption (i.e. absorption and adsorption) of PFOA and the migration of PFOA from the land surface to the water table. Id. at 40. Using data associated with the different soil types present, Dr. Siegel calculated that PFOA deposited at the surface would reach the water table between 0.6 to 4.2 years from when it was deposited depending on the exact soil type and location the PFOA was deposited. Based upon this analysis, Dr. Siegel concluded to a reasonable

degree of scientific certainty that PFOA contamination of the wells within the purported class area was caused by air emissions from the McCaffrey site that traveled from the soil surface to the groundwater. Id. at 5.

Defendants argue that Dr. Siegel’s opinion should be excluded because he failed to consider alternative sources. See Defs.’ Mem. of Law at 58. For reasons analogous to those stated above in Part IV(D)(2) of this Memorandum-Decision and Order, this argument fails because Dr. Siegel only concludes that the McCaffrey site is a significant factor in contributing PFOA to the contaminated wells of the purported class area. Defendants also do not point to any evidence to the contrary showing that a possible alternative source may be a significant factor in contributing PFOA to the contaminated wells of the purported class area.

Dr. Siegel’s opinions meet the Daubert standard. The hydrogeological principles employed by Dr. Siegel and the Rao approach are long-standing and well established. Sullivan at 24. In addition, Dr. Siegel meticulously explains how he acquired his data and subsequently analyzed it using standard hydrogeological analytical techniques to reach his conclusions. Lastly, tracing the transport of PFOA from the McCaffrey site to the wells in the purported class area “fits” the Rule 23 issues presented in this case. For these reasons, the Court denies Defendants Motion to Exclude Dr. Siegel’s testimony.

3. “Thought Experiment”

Defendants also seek to exclude Dr. Siegel’s “Thought Experiment” which attempts to estimate the total available groundwater in Hoosick Falls and determine whether the total PFOA emissions were sufficient to contaminate all the groundwater to the degree of the PFOA levels actually found. See Defs.’ Mem. of Law at 56–58; Siegel Rpt. at 28–29, 34–36. Plaintiffs withdraw this portion of Dr. Siegel’s opinion and assert that this “Thought Experiment” was

more of a theoretical exercise that was not necessary to support Dr. Siegel's conclusions. Opp'n at 45 n.20.

V. CONCLUSION

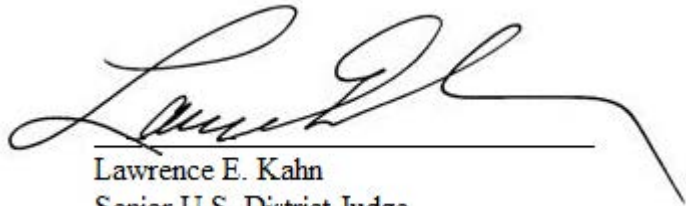
Accordingly, it is hereby:

ORDERED, that Defendants' Motion to Exclude (Dkt. No. 229) is **DENIED in its entirety**; and it is further

ORDERED, that the Clerk serve a copy of this Memorandum-Decision and Order on the parties in accordance with the Local Rules.

IT IS SO ORDERED.

DATED: May 07, 2021
Albany, New York



Lawrence E. Kahn
Senior U.S. District Judge